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Introduction

Libraries are facing a new challenge as academic publishing transitions from subscription to open access funding models. This article and the work it describes make an assumption that this transition is underway, because the growth rate of open access continues to rise steadily¹. For the time being, however, we are dealing with a mixed environment in which subscriptions still play an important role and are responsible for the majority of institutions' expenditure on scholarly communication. The fact that any funding models for open access need to emerge within this context leads to a certain amount of complexity which publishers, libraries, and research funders are all trying to find a way through.

While there are various ways of providing open access, the payment of article publication charges (APCs) for publication in open access journals is one method that many institutions are finding is growing quickly, especially in the UK due to the implementation of policies from research funders such as Research Council UK (RCUK) and the Wellcome Trust. The responsibility for managing APCs is often given to an institution's library (although this is not always the case and in some institutions the library is working more closely with the research office than it has done before). Libraries therefore now have to manage the payment of APCs alongside their traditional role of managing subscriptions, even though budgets and staffing capacity have not always risen accordingly. Part of the work of Jisc Collections is to negotiate deals with publishers on behalf of the further- and higher-education library community in the UK. Now that libraries are paying for both subscription and APCs, Jisc Collections has been including both elements in its negotiations.

The costs of subscription and APC-funded open access articles are linked because both revenue streams are being paid to the same companies and funded from the same source, i.e. library budgets. Research funder grants

INDUSTRY UPDATES

‘Total cost of ownership’ of scholarly communication: managing subscription and APC payments together

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ABSTRACT. *Managing subscription journals and open access charges together has created challenges which may in part be dealt with by offsetting the two revenue streams against each other. In order to do this, it is necessary to have reliable financial data about the extent of the two interacting markets. Jisc Collections has been undertaking data collection regarding universities' article publication charge (APC) expenditure. This process is difficult without a standardized way of recording data, so Jisc Collections has developed a standard data collection template and is helping institutions to release data openly. If available data become more comprehensive and transparent, then all parties (libraries, publishers, research funders, and intermediaries) will have better knowledge of the APC market and can more accurately predict the effects of offsetting.*

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*offsetting
is about
recognizing the
total spend that
an institution
makes*

cover some of this increased expenditure but they cannot be relied upon to fully fund the transition to open access. In the UK, while RCUK and the Wellcome Trust have been providing funds, these do not cover all publications, particularly in the humanities, and also do not always cover the costs of administering open access payments which can be significant. Most importantly they are not guaranteed for the long term. RCUK block grants will continue to be paid out until 2017/18², but beyond then we do not know what the funding situation will be. Many institutions are already having to spend a growing amount of their own money on APCs, and given the squeeze on university finances in the UK at the moment we cannot expect their expenditure to continue to rise without a corresponding fall in subscription costs. This is where offsetting comes in.

Offsetting is about recognizing the total spend that an institution makes; what Jisc Collections is calling the 'total cost of ownership'. It can take place at either the global and local level and there is a strong case to be made for implementing it on both levels.

Global offsetting occurs when the number of subscription articles in a hybrid journal (i.e. one that publishes both open access and subscription articles) starts to fall because of an increased number of open access articles, so the publisher reduces the global subscription price for all subscribers. Since a transition to open access is underway, the proportion of subscription content in journals will tend to decrease and so prices should be reduced accordingly as that happens. Local offsetting is when a publisher offers a discount on the combined cost of APCs and subscriptions for those institutions who pay both. As the percentage of content which is open access rises, global offsetting will lower subscription prices, and the level of local offsetting needed will become less. Local offsetting is therefore designed to help institutions ease into the transition to open access without steep rises in expenditure.

Data collection

In order to negotiate offsetting schemes with publishers Jisc Collections has conducted



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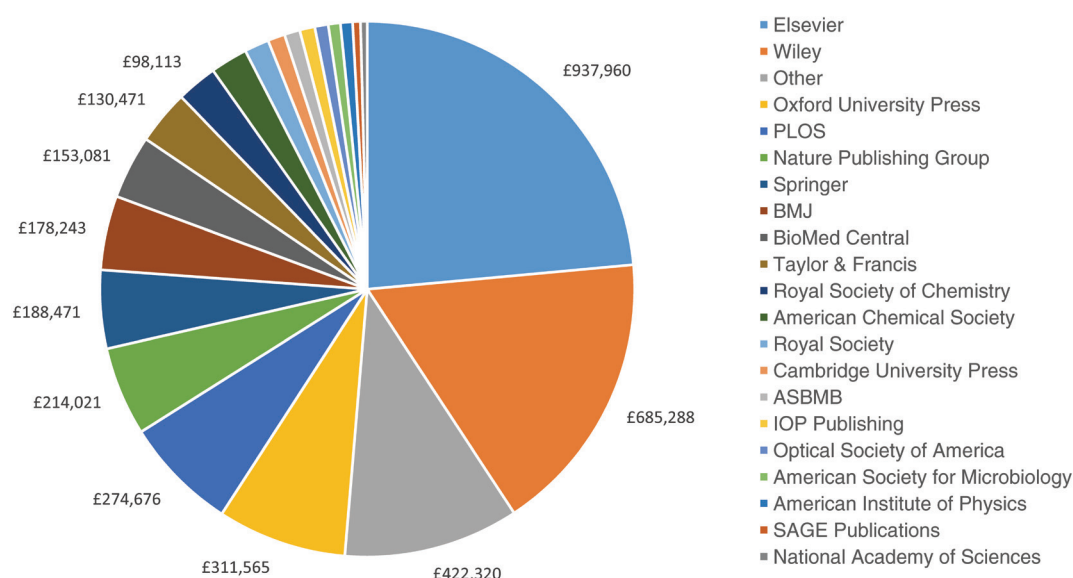


Figure 1. Total APC expenditure 2013. Source: Jisc Collections/Information Power Ltd.

analyses on the nature and extent of the APC market.^{3,4} However, the lack of reliable data has limited the possible analyses. The larger academic publishers probably have better data of their own which puts Jisc Collections at a disadvantage, and smaller publishers may be struggling themselves to understand the new market. Therefore in order to inform negotiations Jisc Collections decided it would undertake some data collection itself.

Since the researcher Stephen Pinfield was

also intending to do some work in this area it was agreed that we would work together rather than duplicate effort. The initial specification for data collection and decisions on which data elements would be collected was therefore based on an agreement between Jisc Collections, Stephen Pinfield, and the consultants Information Power Ltd who carried out the actual data collection in Spring 2014. A total of 23 UK higher-education institutions provided data (see Figure 1).

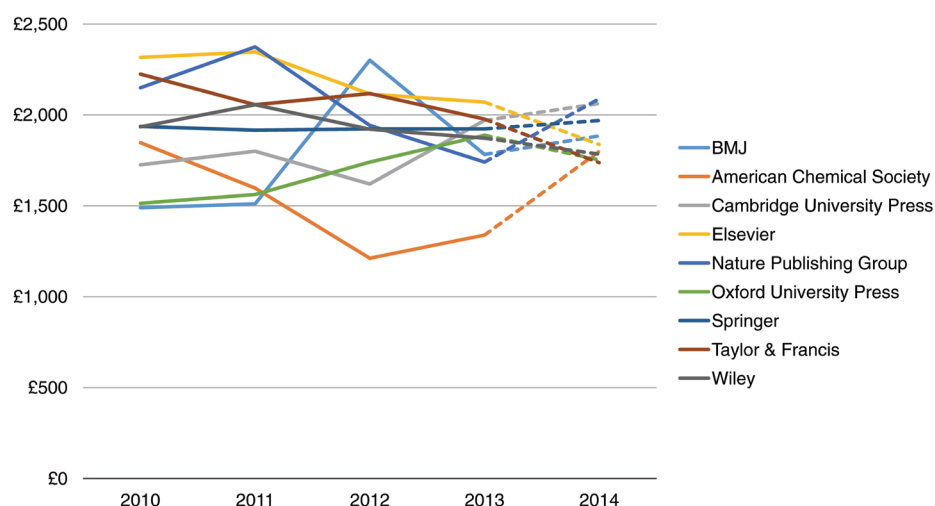


Figure 2. Average APC price. Source: Jisc Collections/Information Power Ltd.

Table 1. Range of APCs (£) charged by the top ten publishers in terms of number of APC payments received for 2013. Source: Jisc Collections/Information Power Ltd/Stephen Pinfield *et al.*

Publisher	Mean	Min	Max	Range
American Chemical Society	1,339	610	3,200	2,590
BioMed Central	1,358	437	2,010	1,573
BMJ	1,767	574	3,600	3,026
Elsevier	2,060	82	4,955	4,873
Nature Publishing Group	1,646	220	3,780	3,560
Oxford University Press	1,892	260	3,000	2,740
Public Library of Science	1,104	151	2,280	2,129
Springer	1,923	262	2,880	2,618
Taylor & Francis	1,963	927	2,950	2,023
Wiley	1,868	439	3,600	3,161

The data collection process highlighted the problems in the existing methods of recording APC data. These are discussed at length in Information Power's report,⁵ but one of the key issues was inconsistency in the data caused by a lack of standardization in data recording by institutions. Another aspect of the total cost of ownership which has not been fully explored yet is the cost of administering open access, such as time spent processing APC invoices or depositing items in a repository. One of the Jisc Pathfinder projects running until June 2016 will be investigating this in detail.⁶

Outcomes

The data gathered by Information Power was used to populate tools developed to model the impact of local offsetting for particular institutions and publishers. Being able to use real subscription and APC expenditure data rather than estimates increases the accuracy of the modelling which puts Jisc Collections in a better negotiating position and allows us to make firmer predictions about the next few years. An example of this is that we could look at an institution's subscription and APC expenditure for the previous year and then use the average growth trends across all institutions

to extrapolate the institution's expenditure in future years. This example demonstrates why more data are so useful: growth trends are based on the patchy data available at the moment: the more (and more accurate) data made available, the more accurate the prediction of growth trends will be.

Releasing the data openly was not part of the initial remit so it was not factored into the agreements with institutions. This was partially because the data that were collected also included subscription data, which can be more difficult to share openly. However, once it became apparent that there was a lot to be learned from the APC data and there is a clear benefit of sharing it more widely, Jisc Collections retrospectively asked the participants whether they would be happy to release it openly and some of them agreed to do so. Datasets of these institutions' APC expenditure were then uploaded to FigShare, an online open access research archive, with a Creative Commons Attribution (CC-BY) licence.

One benefit of sharing data more widely is demonstrated by the work undertaken by Stephen Pinfield and colleagues on the same dataset but producing more in-depth analysis.⁷ While Pinfield's involvement from the early stages of discussing data collection meant that the data could to an extent be tailored to his research needs, APC data are generally more useful the more standardized they are, so releasing the data openly means it can be reused by other researchers to ask different questions. As an example of this, by comparing the data originally visualized by Jisc Collections (Figure 2) with the data used by Stephen Pinfield after cleaning it further (Table 1) we can see that there are differences in which data elements have been chosen as important. Jisc Collections' focus in this instance on the average APC price has been enriched by the inclusion of more extensive data used to describe the variations in APC price.

Another useful outcome of the Total Cost of Ownership work is the decision to help institutions to collect and release APC data on an ongoing basis⁸. All institutions are collecting data in some format, whether that is in a Current Research Information System (CRIS) or just in Excel spreadsheets, but they

the project will help institutions collect and release APC data

have mostly been creating their own in-house methods of doing this because no standard way had been developed. This lack of standardization hampers the ability of researchers, librarians, and publishers to understand the APC market. Since there was support from the library community for further data collection, Jisc Collections has created a single standard template for recording APC data.⁸ In order to make this as usable as possible it has been designed by consulting various parties including librarians and research funders. It now has the support of the Wellcome Trust for reporting to universities which receive funding from the Charity Open Access Fund.⁹ In the spirit of working openly, all data are being released under a Creative Commons Public Domain (CC0) licence and will be publicly uploaded to FigShare.

Conclusion

While this article has focused on the situation in the UK, the same issues are to be found elsewhere. Academic publishing is a global market, and hence understanding the full financial impact of the transition to open access will require expenditure data from around the world to be made available. When libraries negotiate with publishers it is currently done either at the institutional or national consortial level, and this more local view can make it difficult to negotiate satisfactory deals that also fit with publishers' global outlook. If expenditure and pricing data are made more transparent, and publishers offer both global and local offsetting, then we can find a way to work towards a sustainable future for scholarly communications.

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